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November 11, 1950

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

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DETROIT

Independent Underwater Camera

See Page 306

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GENERAL SCIENCE

Student Deferment Urged

Another scientific manpower plan is proposed. Interdepartmental group advises a National Scientific Service and virtually complete science student deferment.

➤ DEFERMENT of virtually all college students in scientific and engineering fields and removal of the drafting of scientists and engineers from the hands of Selective Service has been recommended to the President by the Interdepartmental Committee on Scientific Research and Development.

Selective Service Director Lewis B. Hershey does not agree with these recommendations, he told Science Service in Washington, D. C. Neither do advocates of Universal Military Service.

The Armed Forces members of the Interdepartmental Committee did not go along with the other eight civilian agency members in the recommendations.

The committee suggested that: A National Scientific Service be established as soon as possible. All scientists and engineers, including students in training, be registered in order to provide a basis for enrollment in the National Scientific Service. A Scientific Resources Committee be established under the National Security Resources Board to be responsible for plans and decisions on scientific manpower resources.

This would mean that every scientist, technician and engineer, young and old, male and female, and every student in those fields would be required to register with the National Scientific Service. It is estimated that would be more than a million people. However, it is assumed that only the younger, physically fit males would be drafted into the military service during partial mobilization.

The committee stated that, "we cannot safely decrease the number of college graduates in engineering and science below the number graduating this year. An irreparable loss of young men at any time in the next few years might easily be the difference between success and failure in a war of long duration or total war several years ahead of the present."

General Hershey pointed out that, by deferring students in specific fields, such as science and engineering, the committee was going back to a World War II idea that didn't work.

"In general," he declared, referring to six Selective Service Advisory Committees which recommended deferment of high level college students regardless of fields of study, "I am supporting those committees of mine. They want across-the-board deferment of students with high capacity or superiority—call it whatever you want—rather than students in specialized areas. After all, how much chance for deferment would an A-scientist or a Japanese culture specialist have had in 1935?"

Local boards rather than a National Scientific Service should do the drafting for everybody, the General thinks.

"If we let bankers, farmers and scientists draft bankers, farmers and scientists, how many do you think will get drafted?" General Hershey asked. "These people are all citizens first and, in a democracy, their fellow citizens on the draft boards can make the decisions."

The four Defense Department representatives on the Interdepartmental Committee were said to have abstained because of differences within the department on manpower. The differences are between personnel officials who must maintain an armed force of 3,000,000 men with only 1,050,000 turning 19 each year, and logistics officials who must supply that armed force with the latest technical advances in weapons and therefore want the scientific manpower deferred.

The personnel officials are among the strongest advocates of Universal Military Service which conflicts with the concept of deferring students in scientific and engineering fields as expressed by the Interdepartmental Committee.

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ENGINEERING

Hums of Transformers Can Be Controlled

➤ DISTURBING "hums" from electric transformer stations in residential sections must be controlled, the American Institute of Electrical Engineers was told in Oklahoma City by Corbett McLean, Pacific Power and Light Company, Portland, Ore. Several methods were suggested.

These transformers, which step-down high-voltage current to voltages suitable for use in houses, give less hum if constructed of the right kind of steel.

But even in identical unit substations included under the same purchase order there may be an extreme variation in sound levels. The solution of this, according to Mr. McLean, is for engineers to press manufacturers for more uniform assembly with noise level as important features in the design.

Other suggestions include the locating of transformers at least 100 feet from the nearest building and also the use of sound confining enclosures. Whether the higher costing low-hum transformers or sound confining enclosures will be used is a question of which is the more economical.

The increasing population and the greater noise consciousness of the public have created a problem which electric power companies must solve, he indicated. Low frequency transformer hum is apparently a noise to which the average resident has not been accustomed. It differs from the routine traffic disturbances which the public knows. Eradication of this disturbance is an important matter to power companies.

Science News Letter, November 11, 1950

INVENTION

Detector of Flaws in Rail Joints Makes Travel Safer

➤ GREATER safety in railroad traveling is promised with an improved electrical device to detect invisible flaws in rails on which the government issued a patent recently.

This device is an improvement over older types because it will detect flaws near rail joints, which others fail to do. Rail joints actuate the mechanism of ordinary detectors of older types. This results in the concealment of flaws within the region affected by the angle bar connector.

Patent 2,527,002 was issued to Harcourt C. Drake, Hempstead, N. Y., for this device. Rights have been assigned by him to Sperry Products, Inc., Danbury, Conn.

Science News Letter, November 11, 1950

On This Week's Cover

➤ THE FIRST completely mobile 35 mm underwater motion picture camera used by the U. S. Navy makes the diver-photographer entirely independent of surface assistance. G. E. Darral is shown demonstrating the camera on this week's cover of SCIENCE NEWS LETTER.

Independent of air supply and electric cables leading to the surface, it is designed so that it can be completely operated from the outside of the housing. The wings, acting as a planing surface, enable the diver-photographer when sighting through the view-finder to kick his flippered feet and guide himself by tilting and banking the camera similar to a plane in the air.

The underwater photographer is equipped with an "Aqualung," an automatic compressed air, self-contained diving unit and "swim-fins" for his feet. Outfitted in this fashion, the diver-photographer is able to swim with the camera in any direction or to any depth down to approximately 200 feet.

This new technique of motion picture photography has been developed to provide a series of films to aid in the training of the U. S. Naval Deep Sea Divers. (See SNL, Oct. 28, p. 295 for full story.)

Science News Letter, November 11, 1950

GENERAL SCIENCE

Foundation Board Named

The scientists who will mold the policy of the National Science Foundation have been named by President Truman. Sixteen states are represented.

➤ THE 24 board members of the National Science Foundation, appointed by President Truman to make national policy for scientific research and education and administer government grants, are representative of all sections of the nation and the broad fields of science, engineering and industry.

Among the membership are seven university presidents, heads of two big foundation, 11 deans, department heads, or professors of colleges, two industrial presidents. Sixteen states and the District of Columbia are represented on the board of 24.

Professionally, the board includes four biologists, four chemists, four educators, two engineers, one geologist, two industrialists, one mathematician, three medical scientists, and three physicists.

Two women are on the board and one of them, Dr. Cori, is the only Nobel prize winner in the group. The board includes two Negroes, one a chemist and the other a college president.

The members appointed are Dr. Sophie D. Aberle, special research director, University of New Mexico; Dr. Robert P. Barnes, head of the chemistry department, Howard University; Chester I. Barnard, president, Rockefeller Foundation; Dr. Detlev W. Bronk, president, The Johns Hopkins University; Dr. Gerty Theresa Cori, professor of biological chemistry, Washington University Medical School; Dr. James Bryant Conant, president, Harvard University; Dr. John W. Davis, president, West Virginia State College; Charles Dollard, president, Carnegie Corporation; Dr. Lee A. Dubridge, president, California Institute of Technology; Dr. Edwin B. Fred, president, University of Wisconsin; Dr. Paul M. Gross, dean of Duke University Graduate School; Dr. George D. Humphrey, president, University of Wyoming; Dr. O. W. Hyman, dean of medical school and vice-president, University of Tennessee; Dr. Robert F. Loeb, Bard professor of medical services, College of Physicians and Surgeons, Columbia University, and Dr. Donald H. McLaughlin, president of Homestake Mining Co., San Francisco, Calif.

Others are Dr. Frederick A. Middlebush, president, University of Missouri; Edward L. Moreland, partner, Jackson and Moreland, Boston, Mass.; Dr. Joseph S. Morris, head of the physics department and vice-president of Tulane University; Dr. Harold Marston Morse, professor of mathematics, Princeton University; Dr. Andrey A. Potter, dean of engineering, Purdue University; Dr. James A. Reyniers, director of bacteriology laboratories, Notre Dame University; Dr. Elvin C. Stakman, chief, division of plant pathology and botany, University of Minnesota; Charles Edward Wilson, president, General Electric Co., and Rev. Patrick Henry Yancey, professor of biology, Spring Hill College.

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MEDICINE

Sugar Handy Aid For A-Bomb Victims

➤ SUGAR can supply two medical aids to any future atom bomb victims, Dr. Robert C. Hockett, director of the Sugar Research Foundation, reported to the American Public Health Association meeting in St. Louis.

One of these is dextran, a water-white mucilaginous compound produced only from sugar by the action of certain bacteria. It could be used as a substitute for blood plasma and can be produced cheaply.

The second sugar aid to atom bomb victims described by Dr. Hockett is invert sugar. This is a liquid mixture of dextrose and levulose easily made from common sugar. In the ordinary process of digestion, the body converts sugar to invert sugar. But for patients who cannot eat and must be nourished by solutions injected into their veins, invert sugar is a "superior nutriment," Dr. Hockett said. Trials on patients show that the levulose fraction of sugar is apparently what causes improved metabolism and nourishment of the patients given this kind of sugar by veins.

Science News Letter, November 11, 1950

AERONAUTICS

JATO Rockets Use Smokeless Powder

➤ BOOSTER rockets, used to help get fighter planes quickly into the air from the decks of Navy carriers, need no longer cloud the vessel in smoke.

A new rocket, developed for the Navy by the Allegany Ballistics Laboratory, Cumberland, Md., uses smokeless powder for fuel. Although the new unit weighs considerably less than present types, it provides an equal amount of thrust.

Rockets used to provide extra power to planes at the takeoff are called JATO for short. The letters stand for "jet assisted take-off." They are used on carrier decks and short runways at airports to get planes into the air more quickly than can be done by engines alone. The rockets are dropped when they have done their job.

Smokeless powder has been used for some time as a propellant charge for military and naval guns. This is said to be the first JATO to employ it. For its development, both Army and Air Force contributed funds. All three services plan to use the new rocket.

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DENTISTRY

Five Chemicals Seal Tiny Teeth Openings

➤ FIVE substances that can penetrate the entire structure of the teeth, going through enamel defects and decayed areas and plugging the tiny perforations known as lamellae, were reported by Dr. William Ward Wainwright of the University of Illinois College of Dentistry, Chicago, at the meeting in Atlantic City of the American Dental Association.

The five substances are: calcium chloride, silver nitrate, palladium chloride, sodium iodide and copper nitrate.

The extent to which the tiny perforations are plugged and the nature of the substance doing the plugging seems to have much to do with the incidence of tooth decay, it was pointed out.

"Certainly the vulnerability of the tooth

MAPS NEEDED—Robert L. Williams, Yale's newly appointed cartographer, makes a map in Yale's newly established Cartography Laboratory in the University Library. The laboratory, one of the few of its kind in U. S. educational institutions, has been set up to meet the increased demand for maps in classroom teaching.

is increased by the presence of so many permeable tracts," Dr. Wainwright said.

Zinc chloride also could penetrate the lamellae, decayed areas and other defects. Nearly all the lamellae could subsequently be plugged by other substances, however, so they were not considered permanently plugged.

Plutonium, atom bomb material, when used in a citrate complex did not penetrate decayed areas and defects. It attached itself to the surface of the enamel.

Discovery of this vulnerability of the tooth, said to be of prime importance in the prevention and treatment of tooth decay, was made by applying the substances in their radioactive form to teeth that had been extracted. After treatment with the radioactive chemical, the teeth were dissected and the dissected portions applied directly to X-ray film. This gave radioautographs of the teeth for study of their structure.

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METEOROLOGY

Warmer and Drier November for U. S.

➤ THE last two weeks in November will be warmer and drier than usual over most of the nation. However, the Pacific Coast including Washington and Oregon, and parts of Idaho, Montana, Utah and Nevada will have more rain or snow than usual.

Thus the U. S. Weather Bureau's extended Forecast Section, in its regular twice-a-month, 30-day forecast, offers little hope for relief to the flood-threatened Northwest.

Temperatures of the southern Rocky Mountain states will go higher than those of most of the nation in November. They are expected to be "considerably" above normal, the Weather Bureau says. Only northern New England and northwestern Washington will be colder than usual and then only slightly so.

Near normal rain or snow is expected only along the nation's northern border and in the northeast.

Science News Letter, November 11, 1950

BOTANY

Predict Apples That Do Not Turn Brown in Air

➤ APPLES for your Waldorf salad that will not require any special attention to keep them from turning brown in the air were predicted.

"Apple breeders now have available to them a German apple with this desirable trait. If there is sufficient demand for an American apple that will not turn brown when exposed to air, then I see no reason why the breeders can not develop it."

So states Dr. William E. Whitehouse of the U. S. Department of Agriculture's Plant Industry Station, Beltsville, Md., in charge of introductions for the improvement of fruit and vegetable crops.

There is one German apple now available with a non-oxidaze system, that is, a system that will not turn brown, or oxidize, when exposed to air. Two other apple varieties with this same trait have been discovered within the past year and these will also be made available to breeders.

Dr. Whitehouse also predicted the possibility of improving present day apple varieties by breeding those with increased vitamin C content, with the spice-like flavor found in some English apples and with the smooth, after-cooking flesh texture found in certain German and New Zealand apples.

The world-wide search for apples with desirable traits was begun over 15 years ago. Since it takes about eight years for a tree to bear fruit and since frost delayed bearings for five years in a row, the rich collection of foreign varieties is just beginning to be distributed to breeders. Over 1,500 varieties have been rounded up, and only 700 of these have so far had their characteristics thoroughly studied, Dr. Whitehouse stated.

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All the sugar in the *bread* dough does not remain as sweetening; some is converted by the yeast into carbon dioxide and alcohol gas which causes the bread to rise.

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PSYCHIATRY

H.T.'s Attackers Not Ill

An assassination attempted by more than one person, especially when they belong to organized group, is not likely to be act of mental illness.

➤ THE CHANCES are that the attempted attack on the President's residence, the Blair House, was not the act of mentally ill persons.

This is the opinion of Dr. Frederic Wertham, New York psychiatrist and author of a recent book on murder, THE SHOW OF VIOLENCE.

When a single person kills or attempts to kill a ruler or leader, that is often the act of a mentally ill person. It is scientifically called "magnicide," meaning the killing of someone big.

But when two persons act together in an attempted assassination, as they did in this case, and when these persons are members of an organized political group engaged in a political uprising, the act should not be viewed as psychiatric but rather a social or political happening.

This is the opinion of Dr. Wertham, expressed to Science Service by telephone. Dr. Wertham was, of course, speaking generally, in the absence of any direct information about the men who tried to shoot their way into the Blair House.

The assassin of former President McKinley was an insane person, as was also the man who made an attempt on the life of the late President Roosevelt before his inauguration. These were men, acting alone, driven by their own abnormal impulses and a desire to kill a big man in the public eye.

Although the President's residence is visited each year by a large number of "cranks," who are all potentially dangerous, they are, with few exceptions, harmless, quiet and well behaved.

A study of the psychotic visitors to the President and to other public offices in Washington was made a few years ago by Dr. Jay L. Hoffman, then of St. Elizabeth's Hospital and reported to the American Psychopathological Association.

"These patients are, in general, a pitiful lot," he reported. "They are frequently of foreign birth or extraction, without friends or family, well along in years, wanderers, unemployed, and completely unaware of the abnormality of their ideas and behavior.

"One may search the stories of their lives without finding much cause for happiness or satisfaction."

Only five out of 53 patients studied were married. Frequently there were no relatives or friends sufficiently interested in the patient to respond to correspondence from the hospital. A number had been raised in orphan asylums or foster homes. Most of those of foreign birth had no relatives in this country.

Their stories form a contrast to that of the two Puerto Rican Nationalist Party members who shot the White House guards defending the President's residence.

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PHYSICS

Extreme Cold Key to What Makes Steel Really Hard

➤ EXTREME cold has been the key to a new understanding of what makes steel really hard, Dr. James R. Killian, Jr., president of the Massachusetts Institute of Technology, stated at the University Club in Cleveland, Ohio.

Recent studies at M. I. T. have gone a long way toward a solution of the age-old problem of the mechanism of how steel hardens, he said. The same research, he added, has cast uncertainty on many low-temperature theories by showing the possible role of extreme cold in the hardening of steel.

Dr. Killian was discussing cold in the region near absolute zero, which is approximately 460 degrees below zero on the Fahrenheit scale. The recent studies at M. I. T. show that the atoms in steel can rearrange themselves in the process which makes steel hard even at the extremely low temperatures of liquid helium, 453 degrees below zero.

This discovery, he declared, refutes many ideas of low-temperature behavior. These ideas have assumed that the mobility of atoms decreases as their temperature goes lower and lower. These ideas implied that all atomic movements cease at extremely low temperatures and that no changes such as the hardening of steel may occur.

Instead it appears that steel hardening takes place more completely at low temperatures than at any others, he declared. The new studies indicate that steel hardening is a cooperative shear-like "sliding" in which atoms move in unison. At extremely low temperatures large groups of atoms in steel appear to participate in this sliding motion and thus are transformed from a soft form known as "austenite" to a hard form known to metallurgists as "martensite."

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BOTANY

Tree Production Speed-Up By Wires, Cutting Roots

➤ A SPEED-UP of from 12 to 16 years can be applied successfully to the production of better hybrid trees.

Dr. Syrach Larsen of the Danish plant experimental station, Krogerup, reports that he has forced ash trees to bear seeds in three or four years. Under normal forest conditions, the trees would have taken 15 to 20 years to propagate.

His method is to plant the best hybrid young saplings. When the young trees are about three years old, he pushes them into

GIRTH CONTROL—These seed trees have been temporarily steel-banded to force extra cone and seed production for quicker reforestation of nearby harvested area. Theory is to scare tree into thinking that it is dying which causes it to divert food energy to seed production.

maturity by cutting off half of the roots or by wrapping a wire around the trunk. The tree, thus hurt, produces seeds far ahead of time to be sure that there will be other trees to continue the species.

When the pressure is removed from the injured tree, it returns to normal health.

The wire method is also being used in western Washington forests (see picture, p. 309).

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DENTISTRY

Fluoridation Cuts Caries

➤ FLUORIDATION of the water supply in Newburgh, N. Y., for the last four years has resulted in a 32.5% drop in the rate of tooth decay among the town's school children, Dr. David B. Ast, director of the bureau of dental health of the New York State Department of Health, reported at the meeting in Atlantic City, N. J., of the American Dental Association.

By contrast, the decay rate in the neighboring town of Kingston has remained the same that it was four years ago.

Newburgh and Kingston are two guinea pig towns which have been putting on a large scale trial of the value of adding sodium fluoride to the water supply for checking tooth decay. The towns are of about the same size and characteristics. At the beginning of the fluoridation trials, the rate of decayed, missing and filled teeth among some 3,200 school children of Newburgh was 20.6 per 100 permanent teeth. The Kingston rate was 20.2.

The difference in decay rates now, Dr. Ast said, cannot be attributed to any differences in the amount of corrective dental service in the two cities.

Fluoridation of water supplies, he said, may ultimately reduce the tooth decay problem to the point where "the present dental personnel and facilities may be able to control this almost universal disease."

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ENGINEERING

Ozone as Preservative

➤ THE VALUE of ozone in preserving eggs, fruit and meats in storage is reviewed in a leaflet issued in New York by the American Society of Refrigerating Engineers. It was prepared by Dr. A. W. Ewell, ozone consultant of Westinghouse Electric Corporation.

Ozone is a form of oxygen with three atoms of oxygen instead of the two normally present. This special three-atom form of oxygen is found in very small amounts in fresh air.

Ozone can be produced from the oxygen in the air by several means. Important among these means is a device known as the ozonator which produces ozone by an electric discharge. A more simple ozone producer is an ultraviolet lamp.

In the presence of bacteria, molds, odor and taste-carrying vapors, and many other oxidizable substances, ozone loses its extra atom, thus making it the most powerful oxidizing gas known. It burns up the bacteria. Ozone has an advantage over other oxidizers because the only residue it leaves is common oxygen. In the quantities used in storage plants it is ordinarily harmless to human beings.

The most important use of ozone in storage plants is in egg rooms, according to Dr. Ewell. A high humidity is necessary in egg-storage rooms to reduce shrinkage. This high humidity is favorable to mold growth, but the mold growth can be controlled by ozone. When the proper amount of ozone, a relatively small quantity, is used in the egg room, and a temperature of 31 degrees Fahrenheit and a humidity of 90% are maintained, eggs after eight months' storage, he says, are indistinguishable from eggs a few days old.

Experiences with ozone in the storage of apples, small fruits and meats are reviewed by Dr. Ewell. Its use in destroying odors other than putrefaction in cold storage rooms and ship holds is also reviewed. Storage goods subject to rancidity, such as butter, lard and fats, must be excluded from prolonged storage in even low concentrations of ozone, he states.

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MEDICINE

Skin Resistance Measures Deafness in Children

➤ HEARING impairment in babies as young as four months old can be diagnosed with great accuracy through a new testing method developed by Drs. John E. Bordley and William G. Hardy of the Johns Hopkins Hospital and Medical School, Baltimore.

They described the method at the State and Territorial Health Officers Conference in Washington.

Hearing defects need to be picked up at as early an age as possible, they stressed. Children with hearing impairment should have whatever treatment and special training they need before they start to school. Hearing aids, like eyeglasses, can be fitted to very young children. There are "dozens and dozens" of different kinds of hearing problems, the Hopkins scientists pointed out. Not all of them can be answered "by shouting more loudly."

The new test is one for measuring the least possible loudness at which pure tones can be heard. This is called pure-tone audiometry. Ordinarily it involves the cooperation of the person being tested, who must signal when he hears a test-tone. Babies and very young children, however, cannot be tested by this method. So the Hopkins scientists make use of skin resistance methods.

The underlying idea for this is that when humans are stimulated in various ways, sweating occurs. As a result, the skin's resistance to the passage of minute electric currents is reduced. This change in resistance can be amplified and plotted on a moving drum to give a visible record of the response to the stimulus.

To use this method in hearing tests, the child is first conditioned to develop skin resistance changes in anticipation of a standard sound. This is done by giving a light, painless electric shock a few seconds after a standard sound used as a stimulus. When the child has been conditioned, so that he regularly shows a change in skin resistance following the sound stimulus, the tone is gradually reduced in loudness until it reaches a point where the child can no longer hear it. Even when the child is too young to say whether or not he hears the tone, the point of no hearing can be told by the fact that there is no change in skin resistance.

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AERONAUTICS

Near-Vacuum Chamber Tests Supersonic Propellers

➤ AN underground chamber from which most of the air is removed will be in use early in 1951 in carrying out various mechanical tests upon supersonic propellers for airplanes.

It is a steel cylinder nearly 13 feet in diameter and eight feet high, sunk below ground level and covered by a removable low steel dome. Within the chamber, propellers are rotated horizontally. Before a test is started approximately 99% of the air is removed from the chamber so that a low-horsepower engine can be used to rotate the propeller at high speeds.

This new type of propeller-testing device was developed in Dayton, Ohio, by Aeroproducts Division of General Motors under contract with the U. S. Navy. It is designed to accomplish various mechanical tests upon supersonic propellers, also being developed under contract with the Navy and the Air Force.

Information concerning the supersonic propellers under development cannot yet be revealed. However, it is known that the blades are thin with a tapered plan form. They are for probable use in the planes powered with high horsepower gas turbine engines of the types called turboprops. Present supersonic planes are powered with turbo-jets.

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DENTISTRY

Replacement of Teeth

The use of inert metals for tooth roots has made the transplantation of teeth possible. One such replacement is now in its twelfth year in a human jaw.

➤ ARTIFICIAL tooth roots of changeless metal can be implanted into human jaws. This technique gives promise of solving one of the most troublesome dental problems.

Attempted for centuries unsuccessfully, the American Dental Association meeting in Atlantic City was told that such tooth replacement is now possible.

Cobalt-chromium alloy screws have been implanted experimentally in a dog and in some humans. One is now in its twelfth year in a human jaw, Drs. A. E. and M. S. Strock, Boston dental scientists, reported.

Success in the transplantation of extracted, fully formed, natural teeth has been limited only by the gradual destruction of the tooth roots, the Boston dentists pointed out. Past attempts to implant metal roots probably failed, they said, because of the reaction of the tissues to the metal. Inert metals which do not react with tissues were unknown at the time of earlier tests.

The dog that had a cobalt-chromium alloy screw implanted in its upper jaw, where a tooth had been missing, did not have any inflammation or abnormality and was able to eat a regular diet. The screw remained firm and immovable without giving any trouble until the dog died more than two years later. Examination showed that there had been no reaction to the screw by the mouth tissues and that the surrounding teeth were normal.

Some of the screws implanted in human jaws became movable. Microscopic examination showed that a membrane had lined the screws and it became obvious that the implants were being rotated on the membrane. It was decided, however, to keep the screws in and some of the implants now in place have been movable for years.

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GENERAL SCIENCE

Ills Show in Fingerprints

➤ CERTAIN illnesses may leave their mark in the fingerprints of the patients. This is the suggestion made by F. R. Cherrill, chief superintendent-in-charge, Finger Print Branch, New Scotland Yard.

The ridges and the fingerprint patterns they form do not change. They are the same in sickness and in health, from infancy to old age, and even after death. But there are other markings found in the fingerprints of some persons. These are creases which show up in the fingerprint as white lines which cross the paths of the ridges at acute angles.

Examination of a large number of prints of apparently normal persons ranging in age from 16 to 75 years shows that 11% to 12% have these white lines, Inspector Cherrill reported in the British science journal, NATURE (Oct. 7).

The white lines are mostly confined to the middle, ring and little fingers of the left hand.

The white lines can develop even after death. An aged woman, 90 years old, was fingerprinted twice after her death. The first set of prints showed no white lines, the second set taken two days later showed them plainly in the left ring finger and the left little finger.

Inspector Cherrill was led to make his study of the white lines in the fingerprints of sick persons from his observations of attempts to fingerprint dead bodies. The left hand shows signs of greater or more rapid decomposition than the right.

Since the left hand, he reasoned, is more susceptible to changes after death, perhaps the left hand of a living person might be more susceptible to changes caused by disease. His study of the fingerprints of diseased persons lent support to this idea.

Science News Letter, November 11, 1950

CHEMISTRY

Mica Flakes Are Secret Of "Sandwich" Paint

➤ MICA flakes are the secret of success of a new, three-decker corrosion-resistant paint developed in Sharon, Pa., by the Westinghouse Transformer Division.

It is primarily for protecting the familiar steel neighborhood transformers which step down the electrical voltage from distribution lines so that the current may be safely used in buildings. Other applications are possible, however, particularly where seacoast atmosphere makes other paint coatings unsatisfactory.

The mica flakes are used in the middle coating of this triple protective covering, and are embedded in a syrup-like plastic. They ward off the attacks of moisture and oxygen, principal causes of rust, J. G. Ford, Westinghouse engineer, states. They also increase the heat resistance of the middle coat as much as ten times at high temperatures.

The inner coating of the three-decker paint is a special primer that clings tightly to the steel surface and seals it from contact with the air. The second coat with its pigment of mica flakes, is then applied and allowed to dry. The third coat is applied to give the transformer a pleasing appearance and to shut out ultraviolet radiation from the sun. All three coats are necessary. Each layer adds to the strength and resistance of the others.

Science News Letter, November 11, 1950

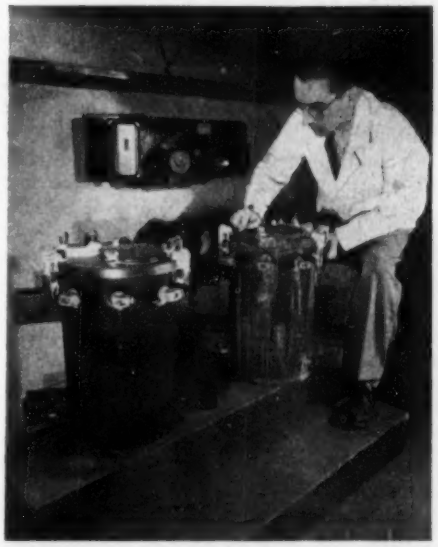
INVENTION

Nobelist Fermi Awarded Patent on Atomic Device

➤ NOBELIST Enrico Fermi, the scientist who directed the building of the world's first chain-reacting pile, has been granted a patent on one of his atomic devices, the Atomic Energy Commission announced in Washington.

The neutron velocity selector, as it is called, measures the speed of neutrons as they leave an atomic pile or a particle accelerator. The government owns the patent, No. 2,524,379, awarded to Dr. Fermi, a University of Chicago physicist. It is held by the AEC, which will grant non-exclusive, royalty-free licenses for its use.

Science News Letter, November 11, 1950



PAINT SANDWICH—Still bright and shiny after 1,000 hours of continuous exposure to corrosive salt water spray is the distribution transformer tank at left, which is coated with a new three-decker paint. The tank at right, coated with a standard finish, quickly fell victim to the salt water attack.

DENTISTRY

Gritting Teeth in Sleep Can Injure Gums

➤ IF YOU clench, grit or bite your teeth while you are asleep, you may injure the gums and other tissues supporting the teeth, Drs. Oliver C. Applegate and Roland O. Nissle of the University of Michigan declared at the meeting in Atlantic City, N. J., of the American Dental Association.

Most people put the greatest pressure on their teeth while asleep, the Michigan dentistry professors found. The force applied while eating on the other hand is intermittent for short periods, and is both stimulating and beneficial, they stated.

Patients having some of their teeth replaced by false ones (partial dentures) should wear a special wax rim in their mouths during sleep, Drs. Applegate and Nissle advised.

The appliance will have been completed except for installation of the teeth and thus the wax rim will be supported securely, they said. The wax will record the points of greatest stress and the teeth can be adjusted from this pattern to eliminate the stresses.

Science News Letter, November 11, 1950

PSYCHOLOGY

Cue to Marital Happiness: Follow Own Ideals of Role

➤ A HAPPY husband probably has a wife who is unhappy.

This is the surprising finding of Dr. Robert S. Ort, of Wabash College, from a study of 100 married students or student's wives. Half the subjects were husbands, half wives.

Your happiness in marriage depends, Dr. Ort found, on the extent to which you live up to your own ideas of your role as husband or wife. It also depends on the way your mate lives up to what you think is his or her part.

Here are some other of Dr. Ort's findings:

Husbands are less happy than their wives. And husbands report more difference between their ideals and actuality in their marriages.

Chief source of disappointment of husbands in themselves is in not keeping themselves as clean and tidy as they did during courtship. They also feel guilty about not getting little surprise gifts as tokens of affection for their wives and about not laying down the paper to express affection at their wives' approach.

Chief disappointment of husbands in their wives lies in the fact that the wife does not make love to him at least half the time, as he thinks she should.

Both husbands and wives are more disappointed in themselves than in their mates.

No significant difference was found between happy couples and unhappy couples in either their expectations or the roles they actually play.

Happy and unhappy couples do differ in the way they go about resolving their differences. A large proportion of happy couples solve their problems by talking them over; only 15% resort to aggression or avoidance.

In general, the couples interviewed consider themselves happy; 42% rated themselves as being as happy as anyone they knew.

Details of Dr. Ort's study are reported in the JOURNAL OF ABNORMAL AND SOCIAL PSYCHOLOGY (Oct.).

Science News Letter, November 11, 1950

ZOOLOGY

"Miracle Drugs" Increase Fertility of Bulls

➤ IN a new miracle of the "miracle drugs," two antibiotics, penicillin and streptomycin, have markedly increased the fertility of semen from five low-fertility bulls at Pennsylvania State College.

The discovery may make these drugs important new tools in the growing artificial insemination practice of the U. S. cattle industry.

Treatments with penicillin, streptomycin or a combination of the two brought "highly significant" increases in the fertility of semen solutions, it was revealed in the annual report of the Agricultural Experiment Station at State College.

Experiments with aureomycin, newest of the antibiotics, are now in progress. Preliminary results indicate that this drug, however, is more toxic to bull spermatozoa than penicillin and streptomycin.

Science News Letter, November 11, 1950

MEDICINE

Light Flashes Lead to Brain Tumor Location

➤ A NEW machine to help doctors locate brain tumors and follow thyroid conditions under treatment with radioactive iodine was shown at the joint conference in New York of the American Institute of Electrical Engineers and Institute of Radio Engineers.

Instead of using a Geiger counter to detect radioactive chemicals injected into the body for diagnostic purposes, the new machine uses a scintillation counter. Tiny flashes of light, instead of the more familiar clicking sounds, signal the radioactivity. A special electronic circuit counts the flashes.

The new machine, developed by the Nuclear Instrument and Chemical Corporation of Chicago, is a compact instrument packaged in a unit to be "plugged in and immediately provide diagnostic answers." It was developed from a more elaborate research unit designed for Northwestern University Medical School.

Science News Letter, November 11, 1950

IN SCIEN

ICHTHYOLOGY

Fish Are Noisy In Narragansett Bay

➤ THE FISH in Narragansett Bay are a noisy lot. That is the conclusion three scientists reported recently to the Acoustical Society of America meeting in Boston.

Drs. Alton S. Kelsey, Jr., and R. T. Beyer of Brown University, Providence, and Marie P. Fish, Narragansett Marine Laboratory, made recordings of the sounds made by various fish in the Bay area. Of the 25 species they studied, six made significant amounts of noise.

These were the red-winged and common sea robin, the toad-fish, the long-horned sculpin, the puffer and the burrfish.

Science News Letter, November 11, 1950

GENETICS-DENTISTRY

Heredity Factor in Causing Buck Teeth

➤ A DENTAL pattern running through some families, rather than thumbsucking, is the cause of buck teeth and other kinds of poor alignment of the teeth, in the opinion of three University of Pennsylvania scientists.

The scientists, Drs. John W. Ross, Wilton M. Krogman and Moe B. Markus, reported their studies of hundreds of cases of malposition of teeeth at the meeting in Atlantic City of the American Dental Association.

In all the cases studied they found only one in which they thought thumbsucking contributed to the poor position of the teeth.

"Today, we believe that habits are only an associated condition and the most that can be ascribed to them is that they may cause an exaggeration of the original pattern of occlusion (meeting of the upper and lower teeth)," Dr. Ross stated.

"It must be remembered that the genetic background, the inheritance, determines the pattern.

"While environment may prevent the child from developing this predetermined pattern, orthodontic treatment (correction of irregularities of the teeth) cannot exceed it, in fact, it probably can only approach it."

The least possible treatment should be given to effect desired changes, he said.

If an appliance is to be used to correct irregularities, it should be of the type which allows the teeth to function to the greatest degree according to their normal relationships.

Science News Letter, November 11, 1950

ENE FIELDS

GENETICS

Contact with One Polio Virus Common for Child

➤ GETTING infected with one of the three known strains of polio virus, called Lansing, seems to be a common accompaniment of normal childhood development, Dr. Thomas B. Turner of Johns Hopkins University told members of the American Public Health Association meeting in St. Louis.

The child comes in contact with this particular polio virus about as often as he comes in contact with other childhood diseases.

These are among the findings of a study of almost a thousand residents of Baltimore, about 90% of them children under 15 years, made by Dr. Turner and the following associates: David H. Hollander, Sonia Buckley, U. Pentti Kokko and Dr. Charles P. Winsor. The study was started in 1941, interrupted by the war and resumed late in 1946.

The findings are based on blood tests showing presence or absence of antibodies to the Lansing polio virus. At least two other types of polio virus exist, and there is some evidence to indicate that the Lansing type accounts for only a small fraction of the polio infection that shows up as sickness.

With rare exceptions, the Hopkins scientists found, the process of acquiring naturally antibodies to Lansing polio during childhood was free of symptoms of sickness. Once acquired, the antibodies tended to last for an indefinite time. This might be due to the booster effects of repeated contacts with the virus.

Most babies have Lansing strain antibodies which they get from the mother's body before birth. The antibodies are lost in about 90% of children within one year of birth. Then they start acquiring them again.

Lansing virus infection, the scientists reported, is influenced by seasonal factors. It comes to a sharp peak in late summer and early fall, whether it shows up as sickness or not. The reason for this seasonal distribution, however, is not known.

Science News Letter, November 11, 1950

MEDICINE

Fuzzy Mice Bred For First Time

➤ A STRAIN of fuzzy mice has been bred and established for the first time at the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Me.

The importance of the "Fuzzy" mutation is explained by Miss Margaret M. Dickie, research associate of the Laboratory, as follows: For the first time all four types of hair common to normal coats and other curly coated animals do not occur in the fuzzy mouse's coat. Only zigzag hairs or derivations of these are present.

The fuzzy mice have soft, sparse hair not unlike the down of a newly hatched chick, Miss Dickie and Dr. George W. Woolley, formerly with the Laboratory and now at Sloan-Kettering Institute, New York, say in their description of the new mice in their report to the JOURNAL OF HEREDITY (July).

The new mice join the waved, Caracul, Rex, "naked," bald and rhinoceros breeds of mice at this famous genetics and cancer research laboratory.

Science News Letter, November 11, 1950

MEDICINE

Cortisone in Action Seen Through Rabbit Ear Window

➤ THE ACTION of cortisone, famous anti-arthritis chemical, on another ailment, serum sickness, can be seen through a rabbit ear window, Drs. Robert H. Ebert and Robert W. Wissler of the University of Chicago reported to the Central Society for Clinical Research in Chicago.

The rabbit ear window, or chamber, is a transparent, two-piece plastic device about the size of a half dollar. It clips over a rabbit's ear, letting doctors see through the thin tissues, with skin cut away. The rabbit is neither harmed nor hampered by the device which gives the scientists a view of minute changes as they occur in disease.

Serum sickness sometimes afflicts humans as a result of proteins in serums used in immunizing "shots" for disease prevention. Through the rabbit ear window, scientists could see changes when this condition occurred in rabbits. White blood cells stuck to the sides of the tiny blood vessels. The cells lining the blood vessels swelled. Sometimes blood clots plugged the vessels.

In rabbits treated with cortisone, these damaging reactions were remarkably reduced.

Science News Letter, November 11, 1950

DENTISTRY

False Teeth Get Loose When You Lose Weight

➤ STORE teeth, like clothes, lose their fit if the wearer gains or loses weight, Comdr. Frank Myers Kyes of the U. S. Naval Dental School, Bethesda, Md., pointed out at the meeting of the American Dental Association in Atlantic City.

"When a patient loses 15 pounds of weight, he is not surprised to notice his trousers do not fit," Comdr. Kyes said. "Generally, his dentist has to tell him that his dentures will be affected similarly."

Science News Letter, November 11, 1950

AERONAUTICS

Plane Distress Signals At Flip of Switch

➤ A FLIP of a switch by the pilot of an airplane in distress will automatically turn the craft's radio transmitter to sending out a series of SOS's and radio signals in a device developed in Dayton, Ohio, at the Wright-Patterson Air Force Base.

It is a time-saver and maybe a life-saver. With it, when a pilot realizes that his plane is in danger, no time is lost making radio contact with the ground and he can devote his entire energy to making a crash or forced landing. The radio signals automatically sent when the switch is flipped will aid ground direction equipment to locate the plane.

Designed for use with any present standard airborne communication transmitter, the keyer is slated for installation in most aircraft of the Air Force.

Science News Letter, November 11, 1950

MEDICINE

New Drug Fights Ringworm And Athlete's Foot

➤ A NEW chemical remedy which is reported to give "quite impressive results" in treating ringworm of the scalp in children, athlete's foot and other fungus infections of the skin, was announced at a meeting of the New York Academy of Sciences in New York.

The new drug is called "'Asterol." It belongs to the class of chemicals called benzothiazoles. The general anti-fungus power of these chemicals led Dr. Norbert Steiger of the Hoffmann-La Roche Company, Nutley, N. J., to put together the compound called Asterol for short. Chemically, it is 2-dimethylamino-6-B-diethylaminoethoxybenzothiazole.

Although possessing quite high anti-fungus activity, the new chemical has a low toxicity and is entirely without skin-irritating effect, tests have shown.

Results of use of Asterol for ringworm of the scalp in children and athlete's foot were reported by Dr. Frederick Reiss of New York University-Bellevue Medical Center, New York, and Dr. Conrad Stritzler and associates of Queens General Hospital, Jamaica, N. Y.

Asterol will not be available for commercial sale until the early spring of 1951 because of the need for additional manufacturing facilities.

The team of Hoffmann-La Roche which reported to the membership of the New York Academy of Sciences on the new ringworm and athlete's foot drug treatment consisted of Drs. E. Grunberg, G. Soo-Hoo, E. Titsworth, D. Ressetar and R. J. Schnitzer. Dr. Grunberg described the laboratory studies leading to the discovery of Asterol.

Science News Letter, November 11, 1950

GENERAL SCIENCE

Search for Scientists

Student scientists who will be discovered in the Tenth Annual Science Talent Search will lead in the pioneering of unknown fields, vital to both war and peace.

By MARGARET E. PATTERSON

➤ YOU expect America to keep its place of world leadership in war and peace.

You count on America's scientists to develop better drugs, fuels, weapons, communications and all those things which make America what it is. Scientifically-trained replacements must be added from the youth of the country.

Can you recognize a young scientist when you see one?

If you can, you can help in a nation-wide search for the high school seniors of the Class of 1951 who have the greatest promise of research ability in science.

College scholarships, amounting to $11,000, await the 40 boys and girls who win in the Tenth Annual Science Talent Search. Each will attend the five-day Science Talent Institute in Washington, D. C., next spring with all expenses paid. Honorable mention will be given to 260 more.

Criterion for Scientist

How can you recognize a young scientist when you see one? Use this check list:

1. A well-developed sense of curiosity about almost everything.
2. A willingness to work—hard.
3. Persistence in the face of discouragement.
4. Above average scholastic ability with grades to prove educational opportunities have not been slighted.
5. An acquaintance with science, compounded of reading, talking with others and actual experimentation.
6. Likes to build things and make them work, or takes things apart to see how they work.
7. Reads about science voraciously, and usually enjoys mathematics.
8. Collects such things as stamps, butterflies, minerals, etc.
9. Becomes so absorbed in projects he occasionally forgets to eat, sleep or keep appointments.
10. Relaxes with music and plays games like chess.

If a high school senior you know fits some or all of these characteristics, urge that youngster to enter the 1951 Science Talent Search.

About 16,000 other high school seniors will take a three-hour science aptitude examination in their own schools, submit scholastic and personal recommendations from teachers and principals and write 1000-word reports on their individual scientific projects.

In 1951—as for the past nine years—40 winners will be named and invited to Washington, D. C., to compete for the Westinghouse Science Scholarships. A total of 260 more will be named for honorable mention. All will be recommended for scholarships to the colleges, universities and technical schools of their own choice.

The Science Talent Search, conducted annually by Science Clubs of America, is made financially possible by the Westinghouse Educational Foundation of the Westinghouse Electric Corporation as a contribution to American science.

Winners of Past

Years have gone by since 9 girls and 31 boys were chosen as winners in the first Science Talent Search in 1942.

What kind of scientists have they become? Among the 40 today there are nine chemists, eight physicians, five physicists and five chemical engineers. Three each are mechanical and electrical engineers, two are biochemists and one each is an astronomer, mathematician, physiologist, psychologist and political scientist.

The top winners, who received Westinghouse Grand Science Scholarships of $2,400 each in 1942 are good examples of the progress of the group.

Dr. Marina Prajmovsky Meyers of Farmingdale, N. Y., is a Radcliffe graduate who spent a year doing research in neurophysiology at Harvard. She and her husband, recent graduates of Yale Medical School, are now interning at Wayne County General Hospital in Eloise, Mich. Dr. Meyers plans to specialize in diseases and conditions of the eye.

Dr. Paul Erhard Teschan of Shorewood, Wis., has four degrees from the University of Minnesota. He interned and spent a year's residency in Chicago. With his wife, also an MD, and a son, he now lives in Washington, D. C., where he is a member of the research staff of Walter Reed Hospital. His chosen career is research and teaching in internal medicine.

The 40 winners would modestly tell you they are just getting far enough along in their training to begin contributing to science. But look into some of their laboratories to see what they are doing:

Biochemist Dr. Evelyn Pease Tyner (Boonville, Ind.) is at the University of Michigan investigating amino acids, those building blocks of protein so necessary to nutrition.

Physiologist Paul Cranefield, Jr. (Colum-

GENETICIST—Barbara Wolff, 20, of Flushing, New York, a top STS winner in 1948, worked with mice at Jackson Memorial Laboratory in Bar Harbor, Maine, during the summer. In the winter she studies genetics at Swarthmore College under a $2,400 scholarship.

CHEMIST—A winner in 1946, Walter G. Gall, 21, of Garfield, N. J., has collected since that time a master's degree from Carnegie Tech, and is beginning his doctorate in organic chemistry at the University of Rochester. Here he operates micropipette equipment at the Army Chemical Center in Maryland last summer.

bus, Wis.) is trying to solve the secrets of epilepsy, by his work at the University of Wisconsin.

Organic chemist Seymour Linder (N.Y.C.) already has several new drugs and pharmaceuticals to his credit in his position as research chemist at Hoffmann-La Roche, Inc., Nutley N. J.

Organic chemist Dr. Wolf Karo (Utica, N. Y.) spends his working hours devising better and faster fuels for jet planes with the National Advisory Committee for Aeronautics in Cleveland, Ohio.

Psychologist Beatrice Meirowitz (N.Y.C.), now completing her PhD at the University of Rochester, is studying possible solutions of problems which beset minority groups.

Electrical engineer Paul Winsor III (North Cohasset, Mass.) designs complicated electronic circuits which make it possible for speedy calculating machines to solve problems once prohibitive in man-hours of time. He is employed by Eckert-Mauchly Computer Corp. in Philadelphia.

Physicist Clifford Swartz (Niagara Falls, N. Y.) assists in the construction of a cyclotron at the University of Rochester while he completes his doctorate.

Physicist Donald White (Schenectady, N. Y.) is studying for his PhD in fluid dynamics at Princeton. His work on the diffraction of shock waves is of great importance to the armed forces. Both White and Swartz have sizable fellowships to support themselves and their families.

No less important is the work of the other winning groups of 40 over the past nine years, whether they are now only college freshmen serving their apprenticeship as laboratory "bottle washers" or advanced to positions like Dr. Robert Kraichnan, Philadelphia, Pa.) a winner in 1944, whose study at the Institute for Advanced Study in Princeton, N. J., is directed by Dr. Albert Einstein.

Important, too, are the contributions being made by the more than 2,000 named as honorable mentions since 1942 and hundreds more who have been able to further their education in science through the efforts of cooperating scientists administering concurrent State Science Talent Searches in 23 states.

It is to keep a steady stream of able and creative minds channelled into this reservoir of science talent that the Science Talent Search operates.

No resource in our land is more important and as necessary to conserve as the inventive and ingenious spark that makes a boy or girl a research scientist.

Look around—wherever you are. Find your young scientists and see that they enter the Tenth Annual Science Talent Search.

Their future may depend on your ability to recognize their potentialities.

The future of all of us may depend on the detection and training of their talent.

Complete details of the Tenth Annual Science Talent Search may be obtained by writing to Science Clubs of America, 1719 N St. N. W., Washington 6, D. C.

Science News Letter, November 11, 1950

INVENTION

Typewriter Makes Sheet Music Symbols

➤ IT will be easy to write musical notes on any desired line or space of a printed staff with a special typewriter on which Carroll E. Brizendine, Burbank, Calif., received patent 2,528,110. Keys are provided to print all the customary symbols employed in sheet music.

A special feature of the machine is that musical notes can be printed where wanted without rotation of the platen. Included is a device by which musically lined paper may be aligned selectively in position for impression of notes corresponding either to bass or treble staff.

Science News Letter, November 11, 1950

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ARCHAEOLOGY

Most Delicate Flint Work

► MORE than 1,500 tiny, delicate flint objects, unearthed on Cape Denbigh overlooking Norton Bay, most northwesterly extension of Bering Sea, were the work of a Stone-Age people who lived there thousands of years ago. The find was made by Dr. J. L. Giddings, Jr., of the University of Alaska, and was reported in New York to the New York Academy of Sciences.

These delicately worked objects are the "most meticulous work in flint" known, Dr. Giddings said. One thin stone blade, less than an inch and a quarter long (smaller than a paper clip), is worked with more than 20 parallel, diagonal scars on each face. Of the 1,500 objects, there is not a single large stone tool—no hammer, no adze, no grinding slab. Eskimo guides of the expedition believe the objects must have been the work of a race of "little people" who lived there in ages past.

The tiny objects have little or no similarity to the work of Eskimos of the region, Dr. Giddings said. They do, however, resemble the work of Stone Age Man in the Old World. Some of the points are very much like the famous Folsom and Yuma points, work of the oldest inhabitants of America's Southwest.

At the surface of the site where these ancient objects were unearthed, Dr. Giddings found a thick layer of sod and bunch grass. Few cultural remains were found in this layer. But directly below it he found polished slate and other objects of a people Dr. Giddings calls the Neo-Eskimo. The Neo-Eskimos lived there for several centuries and disappeared about 300 years ago.

Below this layer and separated from it in some parts by sod, he found a bed of fine-grained loam containing stone lamps and flaked stone tools of basalt which were the work of the earliest known Eskimo people, called the Palae-Eskimo.

Digging deeper, Dr. Giddings found a layer of sandy silt seven feet deep. In this silt, no sign of human occupation whatever was found.

Under the silt was bedrock coated with a pencil-thin layer of clay. On the surface of this thin clay layer is where Dr. Giddings found the tiny flint tools made by such skilled workmen thousands of years ago.

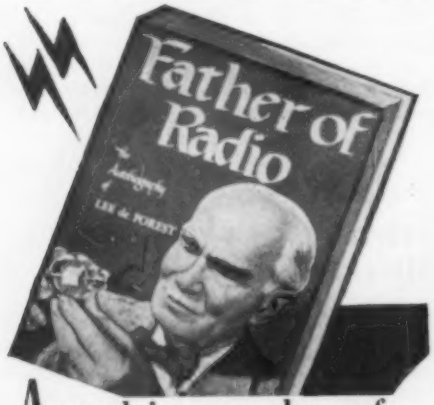
Examination of the geology of the site shows, Dr. Giddings reported, that the little flint tools were dropped there in a long-ago day when Alaska was permanently frozen and had a climate more like that of the glacial age than that of the present. Since then there has been a warmer period and a second cold period before the relatively stable climatic conditions marking the appearance of Eskimo cultures.

Folds in the clay layer form a "solifluction lobe" formed by the thawing of a fine-grained soil below an elastic sod cover and above the hard-frozen permafrost. The Denbigh flints were already there when these solifluction lobes were forming.

The digging by Dr. Giddings this past summer was under the auspices of a joint "Bering Straits Expedition" of the University of Pennsylvania Museum, the Danish National Museum and the University of Alaska with a Viking Fund grant.

Dr. Giddings has brought back materials suitable for dating on the radioactive carbon calendar and has submitted them for dating by this means. These people are much more ancient than the Palae-Eskimos, who are not older than 1,000 years as dated by the radiocarbon calendar.

Science News Letter, November 11, 1950



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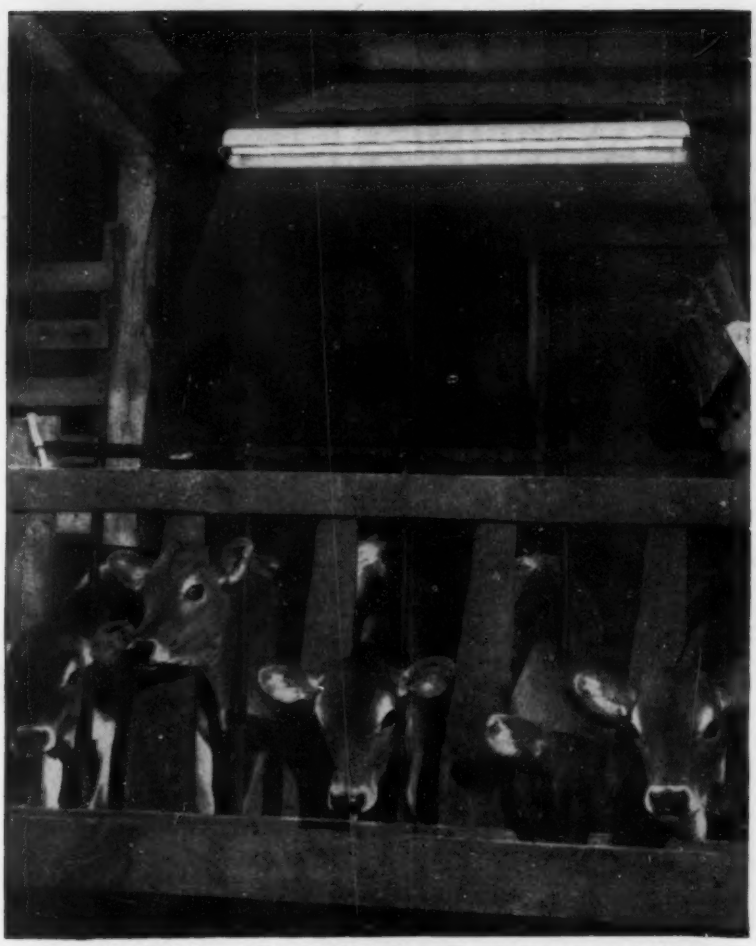

New Lamp Gives a Bargain in Sunshine

*A product of the Lamp Division, Westinghouse Electric Corp., Bloomfield, N. J.

Now sun lovers can bathe to their hearts' content, thanks to the new Fluorescent Sun Lamp* recently developed by Westinghouse.

Five times more efficient than any other sun lamp, with a life 4 times longer, this new discovery costs less to buy and less to use.

So inexpensive is it to operate that farmers are investigating its use in farm buildings. Preliminary studies show that benefits to poultry from the ultraviolet radiations it produces are: Increased egg production; larger eggs with greater Vitamin D content; stronger shells; greater hatchability of eggs; rickets in baby chicks eliminated; and increased rate of growth in small chicks and pullets.

In a test case still under way, the increase in egg production that has taken place was enough to pay for the sun lamp equipment in approximately three months.

While benefits obtained by calves, hogs and other farm animals have not all been determined, it is believed from experience so far that results will lead to extensive application of this lamp as a farm productive tool.

Westinghouse research pays many dividends. To industry, by developing cost-cutting equipment . . . to the public, by making available products that lead to better living . . . and by maintaining demand for its products that keep men and machines busy.

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ZOOLOGY

NATURE RAMBLINGS

Kangaroo Rat

➤ THE NORWAY rat has done a disservice to the rodents of the world by making himself an impudent nuisance and even sometimes a menace to health and human life. For he has brought into disrepute a host of respectable and even attractive rodents who share the name "rat."

There are, for example, the kangaroo rats. The method of locomotion distinguished by leaping great distances on the hind feet is ordinarily thought to be the province of frogs, grasshoppers and certain Australian marsupials who carry sidecars in front for their young. But as a matter of fact, there are many animals of other families elsewhere in the world who have discovered for themselves that jumping is the best defense. When danger threatens the one good way to escape is simply to leave—preferably by air, as far and as fast as muscles will allow.

That is what the kangaroo rat does. Unlike his larger namesake, who goes leaping across the countryside as an every-day sport, this little animal normally sticks close to terra firma and does not jump about in hops many times his own body length. But when he doesn't like the sound or smell of his environs, he can take off like a startled grasshopper, and no dog or snake can predict in which direction or how far he will jump.

The kangaroo rat is like the larger kangaroo in that he uses his tail as a support, the third member of a three-cornered tripod on which he sits and surveys the world. His muscular tail has a bit of window-dressing, in addition. It ends in a bushy tuft of hair which flies out behind its owner whenever he jumps, like a foxtail on a hopped-up hot rod.

There are several species of kangaroo rats in America, all of them outdoor dwellers. You have no need to fear that some day a household mouse will begin leaping about your furniture. Although there are a number of smaller jumping rodents as well as the rats, these too stick to wide-open fields and woodland. Their common name is "Kangaroo mice," obviously.

To balance this borrowing of another animal's title, there are in Australia certain kangaroo-like creatures which are so small that they are usually called "mouse-kangaroos." Where one family stops and the other starts is a nice question. It can best be left to the jumping frog of Calaveras County to decide.

Science News Letter, November 11, 1950

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• Books of the Week •

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THE ADVANCEMENT OF SCIENCE—*British Association for the Advancement of Science,* 170 p., illus., paper, 6 shillings. Mostly addresses presented at the Birmingham meeting, 1950.

THE ANATOMY OF THE GORILLA: The Studies of Henry Cushier Raven and contributions by others—William King Gregory, Ed.—*Columbia University Press,* 259 p., illus., $15.00. A detailed anatomical description of the great anthropoid ape. Excellent illustrations.

ANNUAL REPORT OF THE SECRETARY OF THE INTERIOR—*Gov't. Printing Office,* 407 p., illus., paper, 75 cents. Achievements of the department for the past year ending June 1949.

AN ANTHROPOLOGICAL BIBLIOGRAPHY OF THE EASTERN SEABOARD—Irving Rouse and John M. Goggin, Eds.—*Eastern States Archeological Federation,* 174 p., paper, $2.50.

ARTHRITIS AND THE MIRACLE DRUGS—Alton L. Blakeslee—*Public Affairs Committee,* Pamphlet No. 166, 32 p., illus., paper, 20 cents. A pamphlet telling the effects of cortisone and ACTH on arthritis.

CHEMISTRY AND BIOLOGY OF PROTEINS—Felix Haurowitz—*Academic Press,* 374 p., illus., $5.50. A textbook for graduate students.

THE CLIMATE NEAR THE GROUND—Rudolf Geiger—*Harvard University Press,* 2nd ed., 482 p., illus., $5.00. An earlier work brought up-to-date. Translated from the German by Milroy N. Stewart and others.

DE RE METALLICA—Georgius Agricola—*Dover,* 638 p., illus., $10.00. A new edition of a scientific classic which was translated in a limited edition in 1912. Translated from the first Latin edition of 1556 with biographical introductions, annotations and appendices upon the development of mining methods, metallurgical processes, geology, mineralogy and mining law from the earliest times to the 16th century. Translated by Herbert Clark Hoover and Lou Henry Hoover.

EMOTIONS AND CLINICAL MEDICINE—Stanley Cobb—*Norton,* 243 p., illus., $3.00. A review of the field. Material is drawn chiefly from the author's three Salmon Lectures in November, 1949.

EQUILIBRIUM DATA FOR TIN ALLOYS—*Tin Research Institute,* 60 p., illus., paper, 50 cents. Intended as a reference book for metallurgists and scientific workers.

FEELINGS AND EMOTIONS: The Mooseheart Symposium in Cooperation With The University of Chicago—Martin L. Reymert, Ed.—*McGraw-Hill,* 603 p., illus., $6.50. Theoretical and experimental contributions to the psychology of feelings and emotions as presented at the symposium in 1948. Among the contributors are Gardner Murphy, Margaret Mead, Arnold Gesell and Curt P. Richter.

THE FLIGHT OF THUNDERBOLTS—B. F. J. Schonland—*Oxford University Press,* 152 p., illus., $3.00. A book on lightning for both the general reader and the specialist.

THE FIRST BOOK OF INDIANS—Benjamin Brewster—*Watts,* 69 p., illus., $1.50. A child's book telling how the Indians lived before the white man came and how they live now. Well illustrated by Ursula Koering.

FOREST PLANTATIONS IN THE LAKE STATES—Paul O. Rudolf—*Gov't. Printing Office,* 171 p., illus., paper, 45 cents. Reviews the many forest projects taking place in the lake states.

GEOGRAPHICAL VARIATION AND SUBSPECIATION IN *HELICONIUS CHARITONIUS* LINNAEUS (LEPIDOPTERA, NYMPHALIDAE)—William P. Comstock and F. Martin Brown—*American Museum of Natural History,* 21 p., illus., paper, 25 cents.

GERMAN AVIATION MEDICINE WORLD WAR II, Vol. I, and Vol. II—Department of the Air

Force—*Gov't. Printing Office*, Vol. I: 648 p., illus.; Vol. II: 651 p., illus.; Set: $8.50. A report of a special team of experts from the U. S. Air Forces who visited nearly every university, laboratory and military installation where medical research in support of the Luftwaffe was carried out.

HEALTH INSTRUCTION YEARBOOK 1950—*Oliver E. Byrd, Compiler—Stanford University Press*, 270 p., illus., $3.50. Presents findings of the latest research during the past year.

HOW TO DEVELOP YOUR THINKING ABILITY—Kenneth S. Keyes, Jr.—*McGraw-Hill*, 246 p., illus., $3.50 Some practical ideas on how to develop clear thinking. 81 cartoons illustrate these ideas.

MATHEMATICS TO USE—Mary A. Potter and others—*Ginn*, 501 p., illus., $2.40. A junior-high school text.

THE MINERAL INDUSTRIES OF NEW YORK STATE Department of Commerce—*Division of Commerce and Industry, State of New York*, 108 p., illus., paper, free upon request to publisher, 112 State St., Albany 7, N. Y.

REPTILES AND AMPHIBIANS OF THE NORTHEASTERN STATES—Roger Conant—*Zoological Society of Philadelphia*, 40 p., illus., paper, $1.00 (Plus 10 cents for postage). A non-technical resume of the snakes, lizards, turtles, frogs, toads and salamanders of the area.

A REVISION OF THE GEOMETRID GENUS *SERICOSEMA* (LEPIDOPTERA)—Frederick H. Rindge—*American Museum of Natural History*, 30 p., illus., paper, 25 cents.

A REVISION OF THE NORTH AMERICAN SPECIES OF THE GENUS *SYRRHODIA* (LEPIDOPTERA, GEOMETRIDAE)—Frederick H. Rindge—*American Museum of Natural History*, 26 p., illus., paper, 25 cents.

THE SOLUBILITY OF NONELECTROLYTES—Joel H. Hildebrand and Robert L. Scott—*Reinhold*, 3rd ed., 488 p., illus., $10.00. An advanced college text brought up-to-date.

THE SOUTH AMERICAN HANDBOOK 1950: A Year Book and Guide to the Countries and Resources of South and Central America, Mexico and Cuba—Howell Davies, Ed.—*Trade and Travel Publications* (U. S. Distributor; H. W. Wilson), 27th annual edition, 766 p., illus., $1.50.

SURVIVAL UNDER ATOMIC ATTACK—National Security Resources Board—*Gov't. Printing Office*, 31 p., paper, 10 cents. Practical suggestions for protection against an atomic attack.

THEORY OF MENTAL TESTS—Harold Gulliksen—*Wiley*, 486 p., illus., $6.00. Material included is based on the author's experience at the University of Chicago and Princeton. Written primarily for those working in test development.

TAXONOMIC KEYS: To the Common Animals of the North Central States Exclusive of the Parasitic Worms, Insects and Birds—Samuel Eddy and A. C. Hodson—*Burgess*, 123 p., illus., paper, $2.00.

UNDERPINNING: Its Practice and Applications—Edmund Astley Prentis and Lazarus White—*Columbia University Press*, 2nd ed., 374 p., illus., $10.00. A technical description of methods and applications for foundation construction.

WOOD PRESERVATION STATISTICS 1949—Henry B. Steer—*Forest Service, U. S. Dept. of Ag.*, 31 p., illus., paper, free upon request to publisher, Washington 25, D. C.

Science News Letter, November 11, 1950

GENERAL SCIENCE

Work of Gibbs, Long Acclaimed in Europe

➤ THE GENIUS of Josiah Willard Gibbs, American scientist named with two U. S. presidents as one of six new names in New York University's Hall of Fame, has long been acclaimed in Europe.

But Gibbs' name is almost unkown to his countrymen, and even scientists did not recognize his greatness until years after his death.

Henry Adams called this mathematical physicist "the greatest of Americans, judged by his rank in science." Modern chemistry and metallurgy is based upon his discoveries in the laws of heat. He was a professor at Yale University from 1871 until his death in 1903. Yet it was Maxwell, a great Scottish physicist, and later the most learned scientific societies of Europe, who first realized his stature.

Today, nearly 50 years after his death, Gibbs is recognized as having revolutionized chemistry. His principles opened the way for the iron and steel of this century, porcelain, cement, synthetic nitrate fertilizers and hundreds of other vital applications of science to modern industry.

Science News Letter, November 11, 1950

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• New Machines and Gadgets •

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PLASTIC SNOWFLAKES, made of transparent styrene, provide sparkling Christmas decorations with a gem-like appearance. They are giant snowflakes in size, and can be bought in individual form or assembled to form an 18-inch Christmas tree or a Gothic window.

Science News Letter, November 11, 1950

MULTI-COLOR ENAMEL, for uses ranging from furniture to sidewalls is applied in a single coat to give a uniformly-distributed broken-effect finish. A combination of brown-and-white, or black-and-white, gives a marbleized finish. The enamel is available in 16 color combinations.

Science News Letter, November 11, 1950

INFRARED HEATER, in a 10-inch deep aluminum cup, is controlled by an automatic thermostat which turns on the electric current and heat when the temperature approaches freezing. The portable device has many applications from engine warming to frost protection.

Science News Letter, November 11, 1950

TINY OBJECTIVE LENSES used in certain microscopes are smaller than a housefly's eye but accurate to a millionth of an inch. Three of them, among the most

powerful lenses known, are shown in the picture on the head of a common pin.

Science News Letter, November 11, 1950

LABORATORY MIXER for liquids, a liquid and a solid, or a liquid and a gas, does not use the customary whirlpool action but instead a paddle-baffle arrangement which mixes both horizontally and vertically. It is faster and more efficient than whirlpool mixing.

Science News Letter, November 11, 1950

POLISHING BLOCK for silverware is made of a chemical rubber known as neoprene with contours that fit silver of different shapes. The top has grooves for forks, a flat section for knives, and spoon-fitting parts. Silver polish is applied directly to the neoprene block.

Science News Letter, November 11, 1950

BLANK FACE of a new type of doll can be changed with pencil or crayon as often as the young owner may wish. The face is made of rigid vinylite plastic on which new expressions can be easily drawn, and from which old decorations can be wiped with tissue.

Science News Letter, November 11, 1950

OZONATOR in a new type is an industrial machine for testing rubber and rubber-like materials in an atmosphere containing ozone. The machine generates ozone into an exposure chamber on which specimens are rotated on a rack. Resistance to cracking is tested.

Science News Letter, November 11, 1950

Do You Know?

South Korea has one of the world's largest deposits of *tungsten*.

Sweet potatoes are rich in [illegible] which, in the body, changes to vitamin A.

Cypress wood usually contains an oily material that forms a natural preservative.

The growing use of paper *handkerchiefs* is said by scientists to be an important factor in the control of infectious diseases.

Klystron is a new kind of radio tube which makes it possible to transmit telephone conversations long distances without wires.

Colombia is the only principal livestock-producing country in South America entirely free from the destructive hoof-and-mouth cattle disease.

Glauber's salt is being used in a Massachusetts experimental house to store solar heat until needed to heat the house; the heat of the sun liquefies it, but the heat is given off when the salt solidifies later.

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